

Amendments to the Claims

The following list reflects amendments to the claims and replaces all prior versions and listings of claims in this application.

Claims 1 – 25 (Cancelled)

Claim 26 (Currently amended): A spray drying system for forming a pharmaceutical formulation, the system comprising:

an atomizer, the atomizer comprising a first liquid flow channel ~~for a liquid flow~~, wherein said first liquid flow channel comprises a constriction having a diameter less than 0.51 mm (0.020 in) for spreading ~~[[the]]~~ a liquid into a thin film in the channel, the atomizer further comprising first and second gas flow ~~a second channel~~ channels for an atomizing gas flow, wherein said first liquid flow channel is ~~not contained within the channel of said intermediate to the first and second channel~~ gas flow channels, and said first and second gas flow channel ~~is channels being~~ positioned so that the atomizing gas impinges the liquid thin film to produce droplets;

a drying chamber to dry the droplets to form particles; and
a collector to collect the particles.

Claim 27 (Cancelled)

Claim 28 (Previously Presented): The system of claim 26, wherein the constriction has a diameter less than 0.1 mm (0.005 in).

Claim 29 (Cancelled)

Claim 30 (Currently Amended): The system of claim 26, wherein the first liquid flow channel is annular, the first gas flow channel is circular and the second gas flow channel is annular.

Claim 31 (Currently Amended): The system of claim ~~[[26]]~~ 30, ~~wherein the drying chamber has a gas inlet stream having an inlet temperature of at least 90°C~~ and further including a third gas flow channel in fluid communication with and perpendicular to said first gas flow channel

wherein a flow of gas exiting the third gas flow channel impinges the thin film at a right angle thereto.

Claim 32 (Previously Presented): The system of claim 26, wherein the drying chamber has a gas outlet stream having an outlet temperature of at least 50°C.

Claims 33 – 39 (Cancelled)

Claim 40 (Currently Amended): The system of claim ~~[[33]]~~ 26, wherein the pharmaceutical liquid comprises an active agent and an excipient.

Claim 41 (Currently Amended): The system of claim ~~[[33]]~~ 26, wherein the particles have a rugosity above 2.

Claim 42 (Currently Amended): The system of claim ~~[[33]]~~ 26, wherein the particles have a density below 0.5 g/cm³.

Claim 43 (Previously Presented): The system of claim 40, wherein said excipient has a glass transition temperature above 35°C.

Claim 44 (Currently Amended): The system of claim ~~[[33]]~~ 26, wherein the particles have a mass median diameter less than 20 µm.

Claim 45 (Currently amended): A spray drying system for forming a pharmaceutical formulation, the system comprising:

an atomizer, the atomizer comprising a first annular channel for a liquid flow, wherein said first annular channel comprises a constriction having a diameter less than 0.51 mm (0.020 in) for spreading ~~[[the]]~~ a liquid into a thin film in the channel, the atomizer further comprising a second annular channel for an atomizing gas flow, wherein said first and second annular ~~channel is not contained within the channel of said second annular channel~~ channels are concentric, and said second annular channel is positioned in proximity to the first annular channel so that the atomizing gas impinges the liquid thin film to produce droplets;

a drying chamber to dry the droplets to form particles; and

a collector to collect the particles.

Claim 46 (Cancelled):

Claim 47 (Previously Presented): The system of claim 45, wherein the constriction has a diameter less than 0.1 mm (0.005 in).

Claims 48 – 50 (Cancelled)

Claim 51 (Currently Amended): The system of claim ~~[[33]]~~ 45, wherein the particles have a rugosity above 2.